In the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. A microchip on a substrate, comprising a channel for a liquid sample containing a particular component and a sample feeding part provided in said channel,

wherein said channel is branched into a first channel and a second channel, an inlet of said first channel from said sample feeding part has a filter for preventing passage of said particular component, and an inlet of said second channel from said sample feeding part has a damming area preventing passage of said liquid sample while permitting said liquid sample to pass when an external force equal to or larger than a given level is applied.

2. The microchip as claimed in Claim 1, wherein said damming area is a lyophobic area.

3. The microchip as claimed in Claim 1 [[or 2]], wherein said liquid sample which has passed through said filter moves by capillary action.

4. The microchip as claimed in ~~any one of Claims 1 to 3~~ Claim 1, wherein said first channel further comprises an inflow stopper downstream of said filter for preventing a liquid from flowing into said first channel.

5. The microchip as claimed in Claim 4, wherein said inflow stopper prevents a liquid from flowing into said first channel when a predetermined amount of liquid enters said first channel.

6. The microchip as claimed in Claim 4 [[or 5]], further comprising external force applying means for applying an external force to a liquid sample flowing said channel,

wherein said external force applying means applies an external force to a sample such that when inflow of a liquid into said first channel is stopped by said inflow stopper, said liquid sample flows over said lyophobic area into said second channel.

7. The microchip as claimed in ~~any one of Claims 1 to 6~~ Claim 1, wherein said filter is comprised of a plurality of pillars.

8. The microchip as claimed in ~~any one of Claims 1 to 6~~ Claim 1, wherein said filter is an aluminum oxide, a porous film or a polymer gel film.

9. A microchip on a substrate, comprising a channel for a liquid sample containing a particular component and a plurality of discharge channels along the sidewall of said channel, wherein said discharge channels prevent passage of said particular component.

10. A microchip on a substrate, comprising a channel for a liquid sample containing a particular component and a filter disposed to block the flow in said channel for preventing passage of said particular component, wherein said channel comprises a branched part consisting of a sample feeding part and a sample recovering part in one side and a solvent feeding part in the other side.

11. The microchip as claimed in Claim 10, further comprising a discharging part disposed at a position other than said solvent feeding part in the other side of said filter, from which said liquid sample passing through said filter is discharged.

12. The microchip as claimed in Claim 11, wherein said liquid sample passing through said filter moves by capillary action.

13. The microchip as claimed in ~~any one of Claims 10 to 12~~ Claim 10, wherein said solvent feeding part comprises a damming area preventing a liquid from entering from the direction of said filter while facilitating discharge of the liquid toward said filter.

14. The microchip as claimed in ~~any one of Claims 10 to 13~~ Claim 10, wherein said sample feeding part comprises a damming area preventing a liquid from entering from the direction of said filter while facilitating discharge of the liquid toward said filter.

15. The microchip as claimed in Claim 13 [[or 14]], wherein said damming area is a lyophobic area.

16. A microchip on a substrate, comprising a channel including a first channel in which a liquid sample containing a particular component flows and a second channel extending along said first channel, and a filter intervening between said first channel and said second channel for preventing passage of said particular component,

wherein said first channel includes a sample feeding part for introducing said liquid sample upstream in the flowing direction and said second channel comprises a substituting solvent feeding part at a position corresponding to the downstream in the flowing direction in said first channel.

17. The microchip as claimed in Claim 16, further comprising an external force applying means which applies an external force to said first channel and said second channel in different directions.

18. The microchip as claimed in Claim 17, wherein said external force applying means applies a larger external force to said first channel than to said second channel.

19. A microchip on a substrate, comprising a channel for a liquid sample containing a particular component and an electrode formed in said channel,

wherein said electrode has a charge having a different polarity from that of said particular component.

20. A process for concentrating a particular component in a liquid sample using said microchip as claimed in ~~any one of Claims 1 to 8~~ Claim 1, comprising the steps of

applying an external force enough to introduce the liquid sample containing said particular component and a solvent into said sample feeding part but not enough for said liquid sample to pass through said damming area;

applying an external force comparable to that applied in said step of introducing said liquid sample to said sample feeding part to introduce said solvent or another solvent into said sample feeding part for a given period; and

stopping said flow of the liquid into said first channel.

21. The process for concentrating as claimed in Claim 20, wherein in said step of stopping said flow of said liquid into said first channel, an external force larger than that in any other steps is applied.

22. A process for replacing a solvent in a liquid sample containing a particular component using said microchip as claimed in ~~any one of Claims 1 to 8~~ Claim 1, comprising the steps of

applying an external force enough to introduce the liquid sample containing said particular

component and a first solvent into said sample feeding part but not enough for said liquid sample to pass through said damming area;

applying an external force comparable to that applied in said step of introducing said liquid sample to said sample feeding part to introduce a solvent other than said first solvent into said sample feeding part for a given period; and

stopping said flow of the liquid into said first channel.

23. The process for replacing a solvent as claimed in Claim 22, wherein in said step of preventing a liquid from flowing into said first channel, an external force larger than that in any other steps is applied.

24. A process for concentrating a particular component in a liquid sample using said microchip as claimed in ~~any one of Claims 10 to 15~~ Claim 10, comprising the steps of

introducing the liquid sample containing said particular component and a solvent into said sample feeding part; and

recovering said particular component from said sample recovering part by introducing another solvent from a solvent feeding part.

25. The process for concentrating as claimed in Claim 24, further comprising the step of introducing one of the solvents from said sample feeding part, between said steps of introducing said liquid sample and recovering said liquid sample.

26. A process for replacing a solvent in a liquid sample containing a particular component using said microchip as claimed in ~~any one of Claims 10 to 15~~ Claim 10, comprising the steps of

introducing the liquid sample containing said particular component and a first solvent into said sample feeding part; and

recovering said particular component from said sample recovering part by introducing a second solvent other than said first solvent from said solvent feeding part.

27. The process for replacing a solvent as claimed in Claim 26, further comprising the step of introducing said second solvent from said sample feeding part, between said steps of introducing said liquid sample and recovering said liquid sample.

28. A process for replacing a solvent in a liquid sample using a separator comprising a first channel and a second channel for a liquid sample containing a particular component and a filter intervening between said channels, comprising the step of

moving the liquid sample containing said particular component and a first solvent in said first channel in a first direction; and

simultaneously moving a second solvent in said second channel in a direction different from said first direction,

wherein a ratio of said second solvent to said first solvent increases as said liquid sample is moved in said first channel.

29. The process for replacing a solvent as claimed in Claim 28, wherein an external force applied for moving said liquid sample containing said particular component and said first solvent in said first channel in said first direction is larger than an external force for moving said second solvent in said second channel in a direction different from said first direction, to concentrate said particular component in the downstream of said first channel.

30. A process for replacing a solvent in a liquid sample containing a particular component using a channel comprising an electrode, comprising the steps of

feeding the liquid sample containing said particular component and a first solvent into said channel while charging said electrode with an opposite polarity to said particular component;

feeding a second solvent into said channel while maintaining said charge of said electrode; and

discharging said electrode and recovering said particular component together with said second solvent.

31. The process for replacing a solvent as claimed in Claim 30, wherein said electrode has a charge with the same polarity as said particular component in said step of recovery.

32. A mass spectrometry system comprising

pretreatment means for separating a biological sample by a molecular size or properties while pretreating said sample for preparation for enzymatic digestion;

means for enzymatically digesting said pretreated sample;

drying means for drying said enzymatically digested sample; and

mass spectrometry means for analyzing said dried sample by mass spectrometry,

wherein said pretreatment means comprises said microchip as claimed in ~~any one of Claims 1 to 19~~ Claim 1.